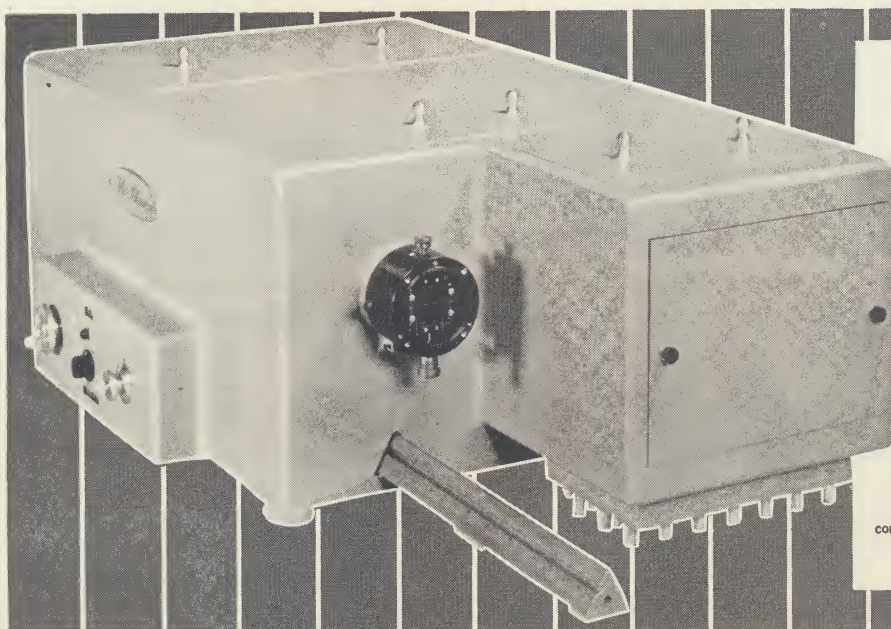


FIRST and ONLY...

symmetrical coma-free line images in a plane grating
MONOCHROMATOR with the McPherson
"corrected loci*" plane grating Spectrometers



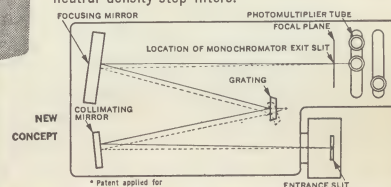
FEATURES Model 216 — a 3 in 1 instrument — is ideal for special problems in spectral analysis because of its:

■ **COMA-FREE SPECTRAL LINES and FLAT FOCAL PLANE** . . . by rotation and simultaneous compound motion the grating is placed in exact position with respect to both the collimator and focusing mirrors to produce coma-free spectral lines at every wavelength.

■ **FAST** . . . f/8.6 optical system with the highest available resolution of any plane grating spectrometer manufactured today.

■ **WAVELENGTH SCALE** . . . accurate to within $\pm 1\text{\AA}$ throughout the entire wavelength range and reproducible to 0.1 \AA .

■ **STIGMATIC OPTICAL SYSTEM** . . . to allow full use of the Hartman diaphragm, sectors, and neutral density step filters.



*Patent applied for.

3-MODE ONE-METER MONOCHROMATOR-SPECTROGRAPH-DIRECT READER

The coma-free, symmetrical lines make this an essential instrument for: time resolved spectroscopy; plasma research in shock tubes, hi-mach wind tunnels, sliding sparks, exploding wires, and pinches; oscillator strength measurements. . .

MODES OF OPERATION

Mode 1 . . . AS A SCANNING MONOCHROMATOR: 2000 \AA to 4 microns.

Mode 2 . . . AS A SPECTROGRAPH with 1700 \AA per exposure with the 1200 l/mm grating on either 35mm film or 2 inch plates, or 4x5" Polaroid film pack.

Mode 3 . . . AS AN 18 CHANNEL DIRECT READER.

Modes are instantly interchangeable without disruption of any optical systems. The vertical rack holds both the focal plane slit mask for the Mode 3 direct reader and either the bilateral slit or the plate holder. The rack is moved vertically to bring the proper focal plane into the optical plane without disrupting the phototube arrangement for the direct reading mode.



McPHERSON INSTRUMENT CORPORATION
530 MAIN STREET, ACTON, MASSACHUSETTS 01720 • TEL: 617 263-7733

Technical Sales and Service Offices in La Canada, California; Acton, Massachusetts; London; Germany-Switzerland-Austria; Melbourne; Paris; Tel Aviv, Tokyo.

PURCHASE SPECIFICATIONS

Model 216 1-meter
Monochromator — Spectrograph — Direct Reader

OPTICAL DESIGN and PERFORMANCE SPECIFICATIONS

- McPHERSON "corrected loci" mounting of plane grating for COMA-FREE line images.
- f/8.6 effective aperture.
- 102x102mm grating, kinematically mounted, 1200 L/mm, blaze to be specified by customer.
- 6" diameter, 2 meter focal length collimating mirror.
- 12" diameter, 2 meter focal length focusing mirror.
- 8" useable photographic focal plane—1700A with 1200 L/mm grating.
- 8.33A/mm reciprocal dispersion.
- Provision for flushing with inert gas for work to below 1850A.

INSTRUMENT PERFORMANCE with DIFFERENT GRATINGS

Grating	Wavelength	Dispersion	1st Order Resolution with 10 μ slit
1200 lines/mm	2000A to 10000A	8.33A/mm	0.15A
600 lines/mm	2000A to 20000A	16.66A/mm	0.30A
300 lines/mm	2000A to 40000A	33.32A/mm	0.60A

COMPONENT SPECIFICATIONS

GRATING ... 1200 L/mm, 102 x 102mm ruled surface, plane grating. Blaze to be specified by customer as 2,000A, 3,000A, 5,000A or 7,500A. Kinematically mounted.

SCANNING MECHANISM ... 12 speed, reversible synchronous motor driven sine drive. Scans from central image to required angle for wavelength coverages listed above. 0.5A to 2,000A per minute scan speeds with the 1200 line per mm grating.

WAVELENGTH COUNTER ... Direct read-out in Angstrom units, accurate to ± 1 A and repeatable to ± 0.1 A.

ENTRANCE SLIT ASSEMBLY ... Slit body contains:

1. A fishtail to provide slit heights of 1, 2, 3, 4, and 5mm and a "v" way for continuously variable slit heights from 5mm to 20mm.
2. A three aperture, Hartmann diaphragm.
3. A neutral density filter in steps of 6, 12, 25, 50 and 100 T.
4. A manually operated shutter or flap valve.
5. Bilaterally adjustable slit adjustable from 10 μ to 2,000 μ in width and from 0 to 20mm in height.

MONOCHROMATOR EXIT SLIT ... a bilaterally adjustable slit in mounting to fit in vertical rack in place of film or plate cassette. Slit adjustable from 10 microns to 2mm in width and 0 to 20mm in height.

RACKING MECHANISM ... The vertical rack has provisions for:

1. A film or plate cassette which may be interchanged for an exit slit.
2. An aperture for holding a metal strip into which exit slits may be machined or photo-etched for use in the direct reading mode.
3. A phototube mounting rack in alignment with the slit aperture above. Capacity for 18 tubes.

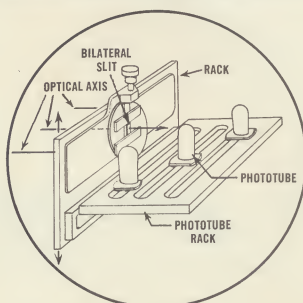
The rack is raised or lowered from outside the housing and has a counter to indicate the location.

The instrument may be changed from the spectrographic mode or the monochromatic mode—whichever is being used—to the direct reading mode without disruption of either mode.

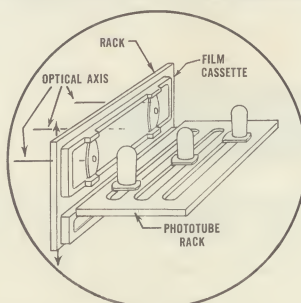
FILM or PLATE CASSETTE ... a cassette for holding either 35mm film or a 2" x 8" plate, daylight loading into the rack. Dark slide opens and closes automatically as the cassette is racked into and out of the exposure position.

OPTIONAL ACCESSORIES ... P-M tubes, shield and mounts, back plate to accept image converter camera, Polaroid film pack, riders, lens mounts and electrically operated shutters, fixed entrance slits.

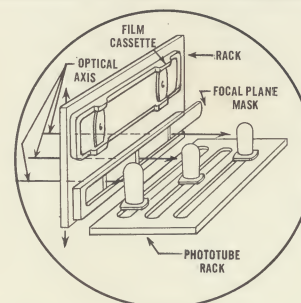
GENERAL INFORMATION ... Size: 54x28x16"; shipping weight: 600 lbs; power requirements: 115 volts, 60 cycles, 150 watts.



Monochromator Mode



Spectrographic Mode



Direct Reading Mode